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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,796	12/31/2001	Christopher J. Rust	1.900.1	3866

26000 7590 01/16/2004

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EXAMINER

LARKIN, DANIEL SEAN

ART UNIT PAPER NUMBER

2856

DATE MAILED: 01/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/035,796

Applicant(s)

RUST, CHRISTOPHER J.

Examiner

Daniel S Larkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,5,7,8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1,5,7,8 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 1, 5, 7, 8, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Re claim 1, claim line 13: The phrase "each one or more" does not make since the claim has been amended to recite only a single multiport chromatograph sampling valve.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,453,725 (Dahlgren et al.) in view GB 1089642.

With respect to the limitation of claim 1, the reference to Dahlgren et al. discloses a gas chromatograph sample and column-switching valve, as shown in Figure 2, an oven (46) having sample inlets (32a) and outlets (32b) into the oven, a multi-port valve (32) having sample inlets (1) and outlets (2) that correspond to the inlets (32a) and outlets (32b) through the oven, a fixed volume sampling loop (32c) which is integral with

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the sampling valve (32); two chromatograph columns (36, 38) fluidly connected to the sampling valve (32). A multi-celled detector (34) is provided to detect the various constituents separated in the columns. Although not shown, the Examiner argues that a heater and an actuating mechanism associated with the sampling valve (32) are inherent to the functionality of the invention since a heater is needed for the oven, and some actuating means is necessary to allow the multi-port valve to perform its sampling function.

The reference to Dahlgren et al. fails to show placement of the oven within an exterior housing.

The reference to GB 1089642 discloses an apparatus used in gas chromatography comprising a furnace (3) holding a multi-port sampling block (13), a sampling volume (27) integral with the sampling block (13), and two columns (7, 8); the furnace (3) further being located within an outer casing (1). A heating system is provided within the spacing between the casing (1) and the furnace (3). The sampling block (13) is provided with a rotating plate (10') actuated by a lever (9) which allows the various fluids to be process through the sampling block (13). Providing an outer casing for the oven would have been obvious to one of ordinary skill in the art as a means of controlling the temperature of the apparatus as well as allowing one to provide extra protection when analyzing explosive components.

With respect to the limitations of claim 8, the Examiner argues that this limitation is a choice of design which is obvious to one of ordinary skill in the art as a way of maximizing efficiency of the analyzer. One would not want to provide components which

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would jeopardize the operating efficiency of the analyzer or would cause measurement inaccuracies.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,453,725 (Dahlgren et al.) in view GB 1089642 as applied to claim 1 above, and further in view of US 5,338,514 (Morabito et al.).

The references to Dahlgren et al. and GB 1089642 both disclose analyzers that utilize a plurality of chromatograph columns, however, neither of the references suggest at least one capillary column. The reference to Morabito et al. discloses a vented capillary gas chromatography apparatus comprising an oven (43), a multi-port sampling valve (27), a capillary column (16), and a detector (17) mounted outside of the oven (43). Providing a capillary gas chromatograph column would have been obvious to one of ordinary skill in the art because capillary columns are well known in the art to separate constituents.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,453,725 (Dahlgren et al.) in view GB 1089642 as applied to claims 1 and 7 above, and further in view of US 5,338,514 (Morabito et al.), US 6,227,034 (Trochesset), US 5,049,509 (Szakasits et al.), and US 5,435,169 (Mitra).

The references to GB 1089642 and Morabito et al. both fail to disclose providing a gas chromatograph which utilizes two detectors, one a flame ionization detector, and a thermal conductivity detector. The reference to Dahlgren et al. discloses a

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chromatograph which uses a multi-celled detector (34) having at least four sensors (34a-34d). The reference does not say type of sensor this is.

The reference to Trochesset discloses an integrated valve design for a gas chromatograph wherein the chromatograph is provided with a multi-port sampling valve (300), a sampling loop (315) integral with the sampling valve (300), two chromatograph columns (220), and two thermal conductivity detectors. The reference to Szakasits et al. discloses a chromatographic analyzer comprising a multi-port sampling valve (50), a sample loop (27), multiple columns (100, 200, 300, 400): and multiple flame ionization detectors (202, 302, 402). The reference to Mitra discloses a device for monitoring volatile organic compound comprising a multi-port valve (12), a sampling loop (13), a column (17), and a detector (15). The reference to Mitra states, col. 2, lines 29-33, that any number of detectors can be used including GC detectors of the type, such as thermal conductivity detectors and flame ionization detectors, to just name two. This teaching would appear to suggest that any of these detectors would accurately detect the volatile organic compounds present in the sample, and that one of ordinary skill in the art would recognize the advantages of one detector over any other detector based upon the specific measuring parameters needed. Furthermore, providing a chromatograph utilizing different detectors would have been obvious to one of ordinary skill in the art as a means of maximizing accuracy of detection by allowing one of ordinary skill in the art to take advantage of the benefits of utilizing one detector over another in combination with the benefits provided by utilizing a second, and different detector.

***Response to Arguments***

6. Applicant's arguments filed 14 October 2003 have been fully considered but they are not persuasive.

With respect to Applicant's argument that the invention is not directed to a gas chromatograph, page 10, line 25, the Examiner agrees; but nevertheless argues that the claims define the invention and the claims do not expressly preclude use of the oven in a gas chromatograph. Only an oven enclosing structure is claimed and this oven structure as the claim is worded could form part of a gas chromatograph or could form a stand alone structure as Applicant is arguing.

With respect to Applicant's argument that claimed invention does not claim a detector device, page 11, lines 1 and 2, the Examiner respectfully argues that the term encloses is equivalent to the term comprising which is open ended suggesting that the invention may or may not claim a detector. Applicant is not required to claim every feature of the invention, so the mere exclusion of a feature in a claim does not mean that the invention does not contain the omitted structure. The claim does not expressly preclude the presence of a detector within the confines of the oven housing, contrary to Applicant's argument.

With respect to Applicant's argument that the invention represents a stand alone article of manufacture, the Examiner respectfully disagrees by arguing that the claims do not provide support for this position. The claims only recite an oven and enclosed structure which could form part of a gas chromatograph or could form a stand alone structure as Applicant is arguing.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

The prior art to JP 5-126812 (Muto) discloses a gas chromatograph comprising a constant temperature oven (1) enclosed within an outer casing (26), wherein the oven encloses a multiport sampling valve (3), a measuring tube/sampling loop (4) connected to the sampling valve (3), a chromatograph column (5), inlet lines into the oven for providing samples and carrier gas, and an outlet line (10) for discharging samples from the oven.

The prior art to JP 5-87793 (Miura) discloses a temperature raising oven for gas chromatograph comprising a first housing/external oven (1), a second housing/internal oven (20) enclosed within the first housing (1), wherein the internal oven (2) encloses a column (7), a heater (3), and inlet (4) and outlet lines (5) that enter and exit the first (1) and second housings (2).

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel S Larkin whose telephone number is 703-308-6724. The Examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Hezron Williams can be reached on 703-305-4705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Daniel Larkin  
AU 2856  
13 January 2004



**DANIEL S. LARKIN**  
**PRIMARY EXAMINER**